

**Amendments to Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (Currently Amended)

Claim 2 (Previously Amended)

Claim 3 (Currently Amended)

Claim 4 (Currently Amended)

Claim 5 (Previously Amended)

Claim 6 (Currently Amended)

Claim 7 (Currently Amended)

Claim 8 (Currently Amended)

Claim 9 (Currently Amended)

Claim 10 (Previously Amended)

Claim 11 (Cancel)

Claim 12 (Currently Amended)

Claim 13 (Previously Amended)

Claim 14 (Cancel)

Claim 15 (Previously Amended)

Claim 16 (Previously Amended)

CHA920030020US1

Claim 17 (Currently Amended)

Claim 18 (Currently Amended)

Claim 19 (Currently Amended)

Claim 20 (Currently Amended)

Claim 21 (New)

Claim 22 (New)

**CLAIMS:**

1. (Currently Amended)

A self-enhancing search system for automatically providing expanded keyword searches to increase the scope of keyword searches comprising:

a semantic taxonomy containing ~~semantic nodes in~~ a hierarchical structure of groups of related keywords organized in nodes that are identified by different semantic node terms;

a search system text analyzer that periodically looks through documents for a database and identifies ~~semantic node terms in the semantic taxonomy applicable to~~ keyword terms used in the documents that occur in the hierarchical structure;

a semantic binder for attaching to a textual index for each separate document, of a set of the documents, a semantic node term applicable applied to a keyword terms term used in the set of the documents ~~and related by the semantic node term~~; and

a relevant document finder which automatically enhances a users keyword query entry with the semantic node term ~~applicable to a~~ for the the node containing the keyword query term when it occurs in the users keyword query to create an enhanced keyword query and based on the enhanced keyword query, including both the users keyword query term and the semantic node term, not only locates documents in the set of documents that contain a match for the users keyword query term but also ~~locates~~ locate documents of the set which do not contain a match for the keyword query term in the users keyword query but contain other keyword search terms ~~of the set of documents that are linked by the semantic node applicable to the users keyword search keyword query term~~ to thereby increase the number of documents returned to the user.

2. (Previously Amended)

The search system of claim 1, wherein the enhanced search query automatically includes both "the users keyword ~~search query~~ term" OR "the semantic node term" in an expanded keyword query to automatically without user intervention locate additional both documents that contain a match for ~~either the users keyword search query entered by the user and other documents that contain a match for a~~ or another keyword query containing the semantic node term ~~which additional documents contain at least one different keyword term related to the semantic node.~~

3. (Currently Amended)

The search system of claim 2 including a semantic dictionary which defines user keyword query terms in user queries in accordance with the semantic terms used to identify nodes in the ~~semantic dictionary~~ hierarchical structure.

4. (Currently Amended)

The search system of claim 3 including a semantic dictionary builder which systematically examines the system log off line for new keyword queries to increase the keyword terms in the ~~semantic dictionary~~ hierarchical structure and associate them with one or more semantic node terms used to identify the nodes of that structure.

5. (Previously Amended)

The search system of claim 4 including ranking the results of searches using the enhanced queries to place terms in the semantic dictionary in order of most often used keyword query terms to reduce table lookup time.

6. (Currently Amended)

The search system of claim 5, wherein the semantic dictionary builder includes:

a sub-module that identifies domain specific terms in a given keyword query, using domain specific glossary;

a sub-module that finds synonyms and related terms for the identified keyword query terms, using a domain specific thesaurus;

a sub-module that finds that statistically close terms to the identified keyword query terms; and

a sub-module that identifies relevant domain specific categories for the identified keyword terms, using domain specific ontology.

7. (Currently Amended)

The search system of claim 6, wherein the dictionary builder includes:

a sub-module that binds keyword keywords queries in the identified semantic taxonomy categories of the hierarchical structures, using the results of the text analyzer.

8. (Currently Amended)

The search system of claim 7, wherein the semantic binder includes:

a sub-module that adds new doc-query links to the meta-data of the corresponding textual index entries to link the documents to the ~~semantic taxonomy~~ categories of the hierarchical structure.

9. (Currently Amended)

Self-enhancing search program on a computer usable medium for operating in combination with processors to increase the number of documents that are returned by user's keyword queries comprising:

semantic taxonomy code on the computer usable medium containing semantic nodes in a hierarchical structure with groups of related keywords organized in nodes that are identified by different keyword node terms;

search system text analyzer code on the computer usable medium that periodically looks through documents for a database and ~~identifies semantic node terms in the semantic taxonomy applicable to~~ identify any keyword terms used in the ~~document~~ documents that occur in the nodes of the hierarchical structure;

semantic binder code on the computer usable medium for attaching to a textual index for each document in a subset of the documents for the database ~~[[to]]~~ a semantic keyword node term applicable to various keyword terms used in the subset of documents;

query enhancer code on the computer usable medium which automatically adds the semantic keyword node term to a user entered keyword query containing a keyword search term applicable to the semantic keyword node term; and

relevant document finder code on the computer usable medium which based on enhanced queries including the semantic keyword node term locates documents which do not contain one of the keyword terms of the keyword search term query entered by the user but contain at least one other keyword term of the various search terms that are related to the one keyword search term by the semantic a keyword node terms term applicable to a users search.

10. (Currently Amended)

The search program of claim 9, wherein the enhanced search query automatically includes a search containing "the users one keyword ~~search query~~ term" OR "the semantic applicable keyword node term" to automatically locate documents without user intervention containing either the keyword search query or the one of the other various keyword terms linked semantically related to the users keyword term through the semantic applicable keyword node term.

11. (Cancel)

12. (Currently Amended)

The search ~~system~~ program of claim 11 including code for a semantic dictionary builder which off line regularly examines new user keyword queries in the system log to increase the keyword terms in ~~[[the]]~~ a semantic dictionary and associates them with one or more semantic of the keyword nodes.

13. (Previously Amended)

The search ~~system~~ program of claim 12 including code for ranking the results of searches using the enhanced queries to place keyword query terms in order of most used keyword terms to reduce table lookup time.

14. (Cancel)

15. (Previously Amended)

The search system program of claim 14, wherein the dictionary builder includes code for a sub-module that binds keyword queries in the identified semantic taxonomy categories, using the original results of the semantic binder.

16. (Previously Amended)

The search system program of claim 15, wherein a semantic binder including the module comprises:

code for a sub-module that adds new doc-query links to the meta-data of the textual index entries to link the documents to the semantic taxonomy categories.



17. (Currently Amended)

A method for a computer search system to interrogate a database that automatically provides expanded keyword search queries comprising:

providing a semantic taxonomy containing ~~semantic nodes in a hierarchical structure of groups of related keywords organized in nodes that are identified by different keyword node terms;~~

providing a search system text analyzer that periodically looks through documents for a database and identifies ~~semantic node terms in the semantic taxonomy applicable to keyword terms used in the documents~~ that occur in the hierarchical structure;

using a semantic binder ~~for attaching to a semantic~~ to attach a keyword node term to database textual indexes of a set of documents of the database which semantic node term is ~~applicable to different~~ identifies a node containing at least one keyword ~~terms~~ search query term used in the set of documents ~~related by the semantic node term;~~ and

a relevant document finder which automatically enhances a users keyword query entry with the ~~semantic node terms applicable to~~ keyword node term containing the at least one keyword term when the users keyword query contains the at least one keyword term to automatically create an enhanced keyword query including both the users at least one keyword query term and the semantic keyword node term that not only locates documents of the set that contain a match for the users keyword query containing the users at least one keyword query ~~terms~~ term but also locates documents of the set which do not contain a match for the users keyword query with the users at least one keyword query term but which contain at least one other different keyword search query terms term of the set of documents ~~that are linked [[to]] by~~ by the semantic keyword node term to the at least one keyword term in the users keyword query containing the users keyword search so that the number of documents returned by the enhanced keyword query is greater than what would have been returned by the keyword query entered by the user.

18. (Currently Amended)

The method of claim 17 including the step of having the enhanced keyword search query to automatically include both "the users keyword search query at least one keyword term" OR "the ~~semantic~~ keyword node term" that without user intervention automatically locates documents that contain a match for either both the users keyword search query or and other documents containing a link to the semantic node term through their textual indexes.

19. (Currently Amended)

The method of claim ~~[[2]]~~ 18 including the step of using a semantic dictionary which defines user keyword query terms in user queries in accordance with the semantic nodes in the ~~semantic dictionary~~ hierarchical structure .

20. (Currently Amended)

The search ~~system~~ method of claim 19 including the step of using a semantic dictionary builder which systematically examines the system log off line for new keyword queries to increase the keyword terms in the semantic dictionary and associate them with one or more semantic nodes in the hierarchical structure.

21. (New)

The search method of claim 20 including the step of dividing a first node into one or more nodes when an increased number of queries directed to positions of the first node justify such a division.

22. (New)

The search method of claim 21 including the step of using an enhanced keyword query including the keyword node term only when the user's entered keyword query returns too few references.